WILDLIFE MANAGEMENT UNIT 21 - FILLMORE

Boundary Description

Millard, Sevier, Sanpete, and Juab counties - Boundary begins at Interstate 70 and Interstate 15; north on I-15 to Black Rock Road; west on Black Rock Road to Highway SR-257; north on SR-257 to Highway US-50 & 6; east on US-50 & 6 to US-6, north on US-6 to Highway SR-132; east on SR-132 to Highway SR-28; south on SR-28 to Highway US-89; south on US-89 to I-70; west on I-70 to I-15 and beginning point.

Management Unit Description

The Fillmore unit includes the area encompassed by the old Oak Creek, Kanosh, and Fillmore units. Total usable mule deer range is estimated at about 1,126,800 acres. Yearlong deer range only makes up 1% of the area. Summer deer ranges are confined usually to elevations above 7,000 feet and would be limiting as it only makes up 30% of the range. The majority of mule deer range within the Fillmore unit is classified as winter range (69%). Total useable elk range is estimated at 505,047 acres. Yearlong, summer, and winter elk ranges represent 22%, 38%, and 40% of the total elk range respectively. The majority of deer and elk ranges lie on public lands administered by the BLM and USFS. The Fillmore unit includes the Canyon Mountains northeast of Scipio, the Valley Mountains east of Scipio, and the Pahvant Range east of Fillmore. Elevation is highly variable from approximately 5,000 feet near Fillmore, 10,129 feet on Pioneer Peak, 9,711 feet at Fool Creek Peak in the Canyon Mountains, and 8,240 feet in the Valley Mountains. The Valley Mountains are relatively dry and have no continuous flowing drainages. The Canyon Mountains drain mostly to the west by way of Oak Creek and Fools Creek, and to the east down Little Oak Creek. The major Pahvant drainages are Chalk Creek, Pioneer Creek, Maple Hollow, and Wild Goose Creek on the west side, and Maple Creek on the east side.

The major vegetation types that make up the summer range are mountain brush, conifer, aspen, and dry meadow. A history of severe overgrazing of these steep mountain ranges has resulted in poor ground cover and related soil disturbances. This in turn resulted in problems of periodic flash flooding and soil erosion which necessitated a great deal of costly watershed and soil stabilization work by the U.S. Forest Service. Contour trenching, seeding, grazing reductions, and other management practices have largely eliminated the flash flooding problems. However, the land is still in the recovery process. Meanwhile, production rates of desirable forage, especially forbs, remains relatively low.

A number of events have resulted in changes in the character of the winter range, especially for the Valley Mountains. In 1981, two large wildfires burned approximately 60,000 acres, mostly in pinyon-juniper areas of the winter range resulting in a significant reduction of important escape and thermal cover. Portions of these burns have been seeded resulting in increased production of forbs and grasses in some areas. However, browse species in some of the burned areas remain limited. In addition to these burns, approximately 6% of the winter range was chained and seeded. Also, a deer-proof fence built along I-15 has severely limited the movement of deer between the Oak Creek and Fillmore portions of the unit which was common before the construction. The three underpasses built near Scipio Pass are receiving little use and apparently deer have yet to learn to use these structures. The unit is also receiving an increase in recreational use, especially in the Oak Creek area.

Poor quality of both summer and winter ranges and depredation on private lands are the major problems within the Oak Creek portion of the Fillmore unit. Additional revegetation projects are needed on the winter ranges. Emphasis should be placed on seeding and/or planting nursery stock of browse species for winter use and forbs for spring forage. Reductions in livestock grazing in the oakbrush and cutting or burning mature

stands to encourage resprouting could improve fawning and summer habitat. The driest portions of the summer range could also be improved by developing water sources and fencing existing water sources to protect them from livestock. These range improvements should also lessen depredation problems by providing alternate food sources to deer which feed in the orchards and fields near Oak Creek.

The Kanosh area is divided in half by I-15. The eastern half includes the southern two-thirds of the Pahvant Mountain range, virtually all of the unit's deer summer range and most of the winter range. The western half is in the Black Rock Desert and contains only 40,000 acres of deer winter range. Deer habitat spans a range in elevation from above 10,000 feet on the summer range of the Pahvant Mountains down to 5,000 feet on the winter range in the Black Rock desert. The topography is steep and rugged between 6,000 and 8,000 feet, but more gentle with rolling slopes, hills, and flats above and below these elevational contours. Meadow and Corn Creeks on the west side and Clear Creek along the southern boundary are the most important drainages. Other springs and intermittent streams are common throughout the summer range. The majority of the deer range is on public land under BLM and Forest Service management. Recreation, wood cutting, geothermal, gas, oil and mineral exploration, and livestock grazing are the most important land uses. Cattle and sheep are grazed under rest-rotation and deferred use programs. Overgrazing in the past has resulted in decreased production on both the summer and winter ranges, as well as increased flooding and soil losses. Stocking rates have been reduced in most allotments but overgrazing is still a problem in some local areas. Concentrations of deer on the winter range have also over utilized key browse species in several areas where livestock have already heavily utilized the browse species because of already existing poor range conditions. With these localized exceptions, both the summer and winter range are generally in good condition. Pinyon-juniper covers about 67% of the normal winter range. Dense pinyon-juniper stands between 5,000 and 6,000 feet have few plants in the understory and have relatively low forage production rates. The browse-shrub type, which is generally found above the pinyon-juniper zone and above the upper limits of severe winter range, usually have the highest rates of forage production. The treated sagebrush and seeded types are most abundant in the lower portions of the severe wintering areas. These are critically important to deer during severe winters. While forage production is still good in most areas, a growing percentage of increasers and undesirable plants (especially cheatgrass) indicates overuse in many places and creating high fire hazards and the eventual loss of sagebrush. Wildfires burned the Dog Valley (1996) and Smiths Ridge (2000) transects in part due to the dense cheatgrass understories that exist on many areas throughout this unit.

Herd Unit Management Objectives

Current management objectives for wildlife are to achieve a target population of 12,500 wintering deer with a post season buck to doe ratio of 15:100. Thirty percent of these bucks are to be 3 point or better. The target winter herd size for elk is 1,400 animals with a post season composition of 20 bulls to 100 cows. Half of the bulls are to be 2½ years of age or older (DeBloois 2001). Buck harvests ranged between 2,000 and 1,500 from 1988 and 1992. Numbers dropped in 1992 to only 630, but by 1995, the harvest had rebounded to 773 bucks. Buck harvest stabilized on the Fillmore ranging from 879-1,016 animals during the period 1997-2000 (DeBloois 2001). The elk herd on the Pahvant elk unit was estimated at 400 to 500 animals in 1993. The winter count of 1996 estimated 625 elk, still well below the objective. Between 1988 and 1994, an average of 14 bulls were harvested from the unit, 91% to 100% of which were mature bulls. Bull elk harvest ranged from 11 to 34 between 1997-2000 (DeBloois 2001). Antlerless permits were first issued in 1990 and steadily increased from 9 in 1990 to 49 in 1993. Antlerless permits, including both limited entry and CWMU tags, ranged from 55 to 106 between 1997-2000 (DeBloois 2001).

Trend Study Description

Trend studies were originally established in 1985 with rereads in 1991, 1998, and 2003. Four additional studies were established in 1997 and reread in 2003. One study was suspended in 2003, Wood Canyon (21-5).

SUMMARY

WILDLIFE MANAGEMENT UNIT 21 - FILLMORE

The majority of the range trend studies in this unit were established in 1985 and reread in 1991, 1998, and 2003. Four additional studies were established in 1997 and reread in 2003. A total of 19 studies were sampled in 2003 with one study, Wood Canyon, being suspended. The Wood Canyon transect samples an area that was burned and is no longer representative of critical winter range due the lack of browse following the burn. Deer use on the site was minimal in 1998. Sixteen of the 19 studies surveyed in 2003 sample winter range along the Oak Creek (Canyon Mountains) and Pahvant Ranges, while three studies sample summer range on top of the Pahvant Range.

Soil trends stayed reasonably stable in 2003. Fifteen studies had stable trends while four studies had downward trends. Stable soil trends are the result of basic ground cover parameters (% cover of vegetation, litter, and bare ground) being fairly constant, or the ratio of these categories to each other fluctuating very little since 1998. Most sites were given a stable rating from an erosion condition class assessment done at each study in 2003 as well. Browse trends were downward on 8 studies in 2003, stable on 5 studies, and improving on two studies. Improving browse trends occurred at Dog Valley (21-11) and Corn Creek (21R-1), both sites that are recovering from burns. Downward browse trends resulted due to one or more key factors including, but not limited to, population declines, increased decadence, reduced vigor, and lower reproduction in key browse species. Only three studies were rated as having downward herbaceous understory trends, while 11 sites remained stable and 5 showed improvements. Stable and improving trends are the result of perennial species either showing little fluctuation in abundance or increasing on a site. Conversely, downward trends were the result of perennial grasses and/or forbs decreasing in frequency in 2003. Average trends for each sampling year are graphically represented below.

Some important vegetation changes documented in 2003 are important to consider here. The invasive annual, cheatgrass, was abundant and widespread throughout the Fillmore unit in 1998. Cheatgrass was sampled on 16 sites in both 1998 and 2003. Nested frequency of cheatgrass declined on 12 of the 16 sites, while average cover declined on 10 of the 16 sites between 1998 and 2003. Bulbous bluegrass, a low value perennial, was sampled on 7 sites in 1998 increasing to 10 sites in 2003. Nested frequency and average cover of bulbous bluegrass increased on 7 of the 10 sites in 2003. As a group, perennial grasses are maintaining themselves quite well in the Fillmore unit. Perennial grasses declined in sum of nested frequency and/or average cover on only 4 of the 19 studies sampled in 2003. Forbs are more effected by precipitation than perennial grasses. Perennial forbs decreased in sum of nested frequency on 11 of 19 sites in 2003, while cover of perennial forbs declined on 9 of 19 sites.

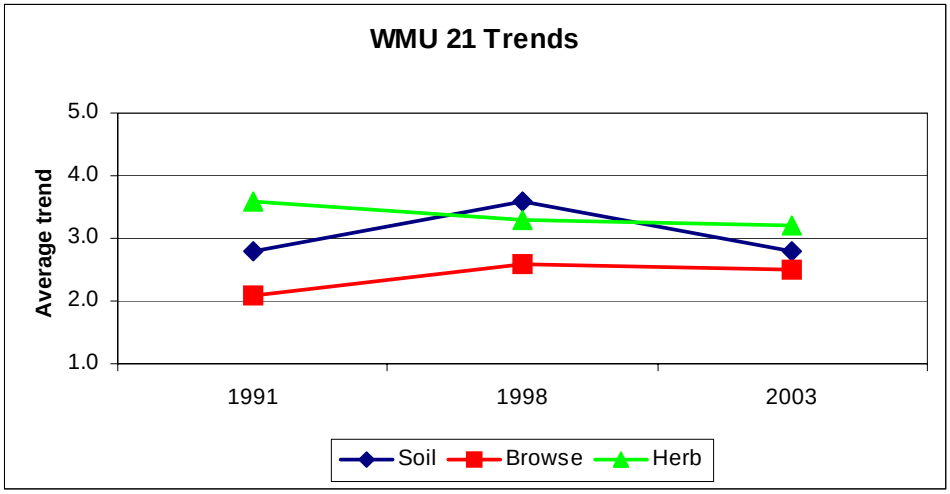
Key browse populations are perhaps the most important vegetative component on big game winter ranges as they represent the forage resource that allows deer and elk to survive the winter months. Big sagebrush (includes three subspecies; mountain big sagebrush, Wyoming big sagebrush, and basin big sagebrush), cliffrose, and to some extent bitterbrush represent the key browse species on most of the trend studies in the Fillmore unit. Between 1998 and 2003, both big sagebrush and the cliffrose/bitterbrush combination showed increased decadence on 8 of the 12 sites where sampled. Big sagebrush recruitment (% young) decreased on 9 of the 12 sites where sagebrush occurred, while cliffrose/bitterbrush had lower recruitment on 6 of the 12 sites that they were sampled on.

Soil and vegetation trends are largely driven by precipitation. Although Utah has been in a statewide drought for the past 5 years, some areas within the Fillmore management unit have not been as severely effected as other parts of the state. Weather station data at three locations was analyzed to look at precipitation trends for the Fillmore unit since range trend studies were established in 1985. These stations occur at Oak City, Fillmore, and Kanosh (Utah Climate Summaries 2004). Precipitation data was averaged over all three

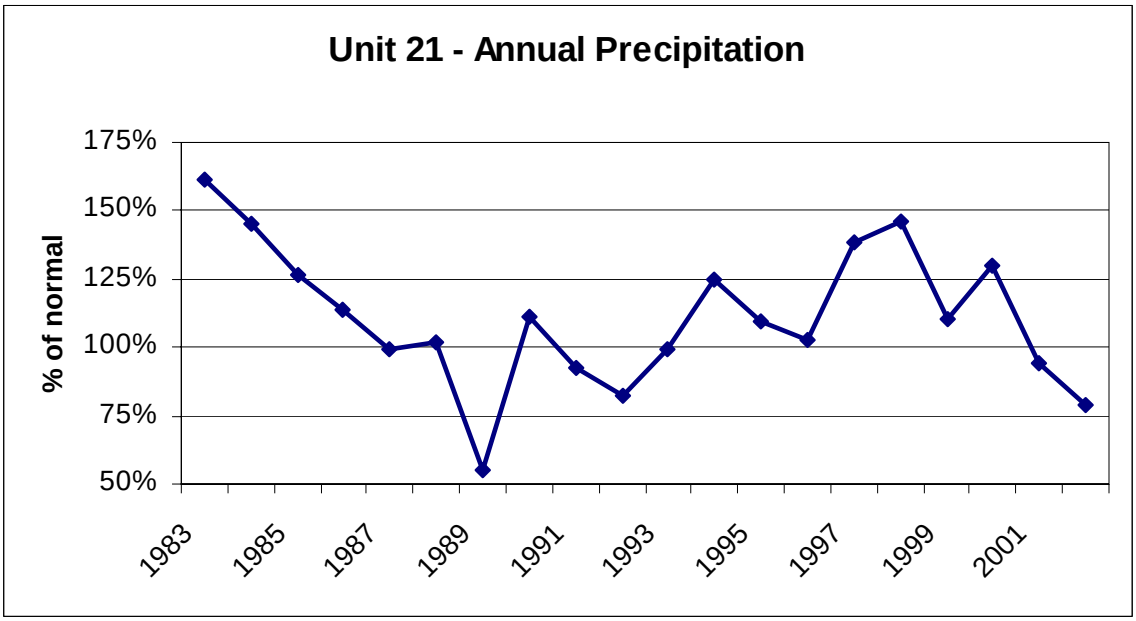
weather stations and data indicate that from 1985-2002, total annual precipitation was below normal in 1989, 1991-1992, and 2001-2002. The years 1991 and 2001 were near 90% (considered within the normal range) with 1989 (55%), 1992 (82%), and 2002 (79%) being the driest. All other years averaged normal or above normal at these 3 stations (see precipitation graphs below). Perhaps more important than total annual precipitation is seasonal distribution of precipitation. Data were analyzed for the different seasons of the year including winter, spring, and fall totals. Spring precipitation (April - June) is important for cool season perennial grasses and forbs, as well as shrub populations, as these species initiate growth during the spring. Weather data indicate that spring precipitation in the Fillmore unit was below 100% of normal in 1987-89, 1992-93, 1996, and 2000-03. For this report, the period from 2000-03 is the focus as it occurred prior to and during the 2003 reading and would most effect current range trends. Although the period from 2000-03 is technically below normal (less than 100%), three years were above 90% with 2002 being about 80% of normal. Although not severe, the period from 2000-03 was on the dry side compared to spring conditions preceding the 1998 reading (152% of normal in both 1997 and 1998). This helps explain why cheatgrass decreased in nested frequency and cover on the majority of the studies in 2003. Increased decadence and lower reproduction in shrub populations is partly due to lower precipitation preceding the 2003 reading compared to the 1998 reading.

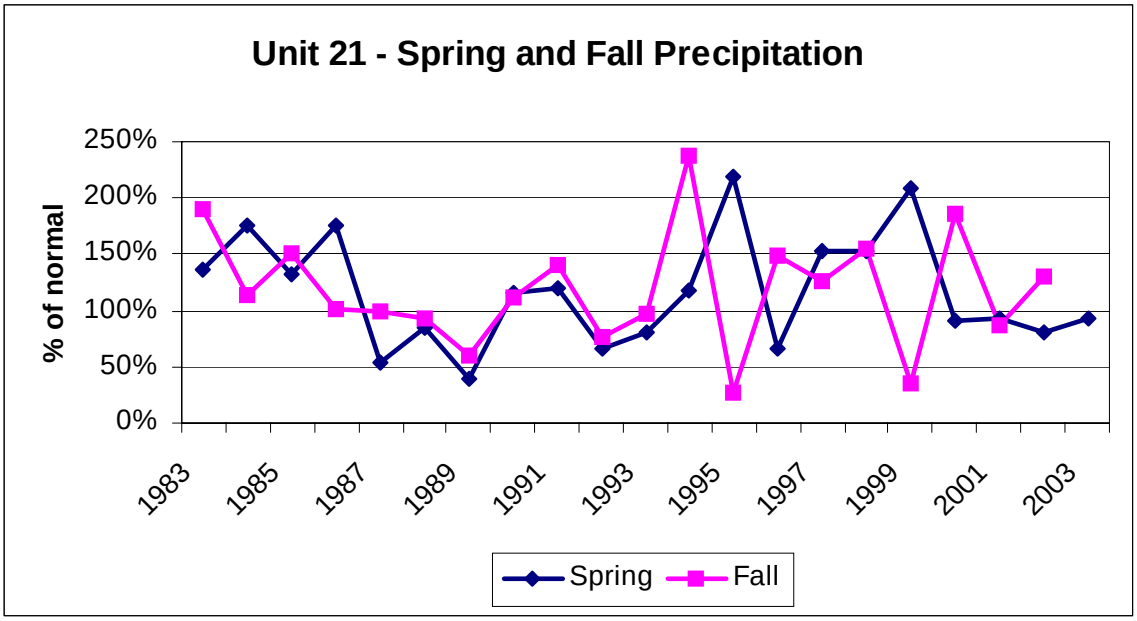
Average Trends – WMU 21 Fillmore

	1991	1998	2003
Soil	2.8	3.6	2.8
Browse	2.1	2.6	2.5
Herb	3.6	3.3	3.1
	16 sites	16 sites	19 sites



Precipitation graphs for the Fillmore unit. Data is percent of normal precipitation averaged for three weather stations at Oak City, Fillmore, and Kanosh (Utah Climate Summaries 2004).





Trend Summary

	Category	1985	1991	1998	2003
21-1 Long Canyon	soil	est	2	3	3
	browse	est	3	3	2
	herbaceous understory	est	4	3	3
21-2 Lovell Hollow	soil	est	3	3	3
	browse	est	1	4	3
	herbaceous understory	est	4	3	3
21-3 Cascade Spring	soil	est	4	3	3
	browse	est	n/a	n/a	n/a
	herbaceous understory	est	3	5	3
21-4 Horse Hollow	soil	est	2	3	3
	browse	est	2	2	1
	herbaceous understory	est	4	1	4
21-6 'M' Hill	soil	est	3	5	2
	browse	est	3	3	3
	herbaceous understory	est	4	3	3
21-7 Bennett Field	soil	est	3	3	3
	browse	est	2	2	2
	herbaceous understory	est	4	2	4
21-8 Smiths Ridge	soil	est	5	3	2
	browse	est	2	4	3
	herbaceous understory	est	4	4	3
21-9 Wide Canyon BLM	soil	est	2	5	3
	browse	est	3	3	2
	herbaceous understory	est	3	3	3

(1) = down, (2), slightly down, (3) = stable, (4) = slightly up, (5) = up
(est) = established, (n/a) = no trend, (susp) = suspended, (NR) = not read

	Category	1985	1991	1998	2003
21-10 Wide Canyon DWR	soil	est	2	4	3
	browse	est	2	2	1
	herbaceous understory	est	5	4	3
21-11 Dog Valley	soil	est	3	3	3
	browse	est	2	1	5
	herbaceous understory	est	3	4	2
21-12 Dameron Canyon	soil	est	2	5	3
	browse	est	2	3	3
	herbaceous understory	est	3	3	4
21-13 Walker Creek	soil	est	3	5	3
	browse	est	3	3	2
	herbaceous understory	est	3	4	4
21-14 Meadow Creek	soil	est	3	3	2
	browse	est	3	2	2
	herbaceous understory	est	3	3	3
21-15 Fillmore Cemetery East	soil	est	3	3	3
	browse	est	2	3	3
	herbaceous understory	est	3	3	3
21-16 Baker Canyon	soil	est	3	3	3
	browse	est	1	3	2
	herbaceous understory	est	5	3	3

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	Category	1997	2003
21-17 Pioneer Peak	soil	est	2
	browse	est	n/a
	herbaceous understory	est	2
21-18 Teeples Ridge	soil	est	3
	browse	est	n/a
	herbaceous understory	est	3
21-19 Teeples Terrace	soil	est	3
	browse	est	n/a
	herbaceous understory	est	4
21R-1 Corn Creek	soil	est	3
	browse	est	4
	herbaceous understory	est	2

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